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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/955,296	09/19/2001	Shih-Chiang Tsao	06720.0068	8161

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EXAMINER	
PHAN, MAN U	

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 06/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/955,296	TSAO ET AL.	
	Examiner	Art Unit	
	Man Phan	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 September 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 10-13* is/are rejected.

7)☒ Claim(s) *6-9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/22/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The application of Tsao et al. for a "method and apparatus for scheduling for packet-switched networks" filed 09/19/2001 has been examined. This application claims Priority from Provisional Application 60253930 filed 11/30/2000. Claims 1-13 are pending in the application.

Claim Rejections - 35 USC ' 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-3 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fawaz et al. (US#6,714,517) in view of Dravida et al. (US#2002/0075875).

With respect to claims 1 and 12, Fawaz et al. (US#6,714,517) and Dravida et al. (US#2002/0075875) disclose a novel system and method for scheduling packets in packet networks, according to the essential features of the claims. Fawaz et al. (US#6,714,517) discloses in Fig. 6 a functional block diagram illustrated the packet classification and scheduling of data communications comprises: receiving a plurality of data packets, each including classification information; classifying each of the data packets with one of a plurality of service level agreements (SLAs) corresponding to the classification information for each packet (*identify packet's flow and classify the packet*) (Col. 14, lines 23 plus and Col. 7, lines 29 pus).

However, Fawaz does not disclose expressly the step of placing packet in priority queue based on the packet classification. In the same field of endeavor, Dravida (US#2002/0075875) discloses a method of packet handling, scheduling and flow control at a network element includes receiving packets on input links coupled to the network element, each packet having a quality of service (QoS) class indicating a service priority ranging from highest (1) to lowest (N). Received packets for each of the QoS classes from 1 to N-1 are stored in a common queue per QoS class while packets received for the lowest (N) QoS class are stored in link queues corresponding to the input links. The packets are transmitted from the common queues and the plural link queues to an output link according to a scheduling discipline.

Regarding claims 2, 3, Fawaz further teaches a guaranteed QoS in packet sitched network, in which packets are classified according to an Service Level Agreements (SLA) by reading the source and destination addresses in the packet (See Fig. 6; Col. 7, lines 29 plus).

Regarding claims 10, 11, they are system claims corresponding to the method and apparatus claims 1-3, 12 above. Therefore, claims 10, 11 are analyzed and rejected as previously discussed with respect to claims 1-3, 12.

Regarding claim 13, This claim differs from claims of Fawaz et al. in view of et al. Dravida et al. in that the claim recited a computer program product for performing the same basis of steps and method, apparatus of the prior arts as discussed in the rejection of claims above. Therefore, claim 13 is analyzed and rejected as previously discussed with respect to claims 1-3, 10-12. It would have been obvious to a person of ordinary skill in the art to implement a computer program product in Fawaz et al. in view of Dravida et al. for performing the steps and apparatus as recited in the claim with the motivation being to provide the efficient enhancement to a queuing and scheduling packets in communications network, and easy to maintenance, upgrade.

One skilled in the art would have recognized the need for effectively and efficiently establishing connection using queuing and scheduling packets based on classification, and would have applied Dravida's novel use of the queuing packets in priority order into Fawaz's teaching of a method and apparatus for scheduling packets in packet switched networks. Therefore, It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to apply Dravida's broadband system with transmission scheduling and flow control into Fawaz's method and apparatus for interconnection of packet switches with

guaranteed bandwidth with the motivation being to provide a method and system for scheduling in packet switched networks.

5. Claims 4, 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fawaz et al. (US#6,714,517) in view of Dravida et al. (US#2002/0075875) as applied to the claims above, and further in view of Tsang et al. (US#6,047,000).

With respect to claims 4-5, Fawaz et al. (US#6,714,517) and Dravida et al. (US#2002/0075875) disclose the claimed limitations discussed in paragraph 4 above. However, these claims differ from the claims above in that the claims require the feature of calculating an allocated credit assigned based upon the size of packet. In the same field of endeavor, Tsang et al. (US#6,047,000) discloses a packet scheduling system in which credit is allocated to each incoming stream with reference to the onward transmission or otherwise of that stream. Fig. 2 is a block diagram illustrated a packet scheduling, where the data packets are variable in size and wherein each input stream is allocated a share of the bandwidth of the output transmission link, the selecting means comprises means for determining the credit allocated to each input stream, the bandwidth allocated to each input stream, and the size of the head of line packets waiting to be transmitted in each input stream, and means for sorting the head-of-line packets in accordance with the difference between the size of the head of line packets and the allocated credit as a proportion of the allocated bandwidth, whereby the input stream having an allocated credit closest to the packet size as a proportion of allocated bandwidth is selected for transmission. Following transmission of a packet the credit for the transmitted input stream is reset to zero (Col. 2, lines 27 plus).

One skilled in the art would have recognized the need for effectively and efficiently establishing connection using queuing and scheduling packets based on classification, and would have applied Tsang's teaching in allocated credit in packet scheduling system, and Dravida's novel use of the queuing packets in priority order into Fawaz's teaching of a method and apparatus for scheduling packets in packet switched networks. Therefore, It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to apply Tsang's packet scheduling system, and Dravida's broadband system with transmission scheduling and flow control into Fawaz's method and apparatus for interconnection of packet switches with guaranteed bandwidth with the motivation being to provide a method and system for scheduling in packet switched networks.

Allowable Subject Matter

6. Claims 6-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for the indication of allowable subject matter: The closest prior art of record fails to disclose or suggest wherein arranging the plurality of queues in a hierarchical order, assigning a priority to the packet based on the hierarchical order, and buffering the packet in one of the queues based on the assigned priority order; calculating a credit accumulated for one of the buffered packets in the first queue, and outputting the one buffered packet based upon the accumulated credit, as specifically recited in

the claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The Fawaz et al. (US#6,654,374) is cited to show the method and apparatus to reduce jitter in packet switched networks.

The Fawaz et al. (US#2003/0133406) is cited to show the method and apparatus to minimize congestion in a packet switched network.

The Chiussi et al. (US#6,532,213) is cited to show the guaranteeing data transfer delays in data packet networks using earliest deadline first packet schedulers.

The Dighe et al. (US#5,042,032) is cited to show packet route scheduling in a packet cross connect switch system for periodic and statistical packets

The Horiguchi et al. (US#2002/0071387) is cited to show the inter-network relay unit and transfer scheduling method in the same.

The Dittia et al. (US#6,674,721) is cited to show the method and apparatus for scheduling packets being sent from a component of a packet switching system..

The Metzger et al. (US#6,765,915) is cited to show the packet communication scheduling with hierarchical tunnels.

The Miller et al. (US#6,888,806) is cited to show the method and system for scheduling packets for transmission froma wireless communication platform.

The Bloch et al. (US#2001/0043564) is cited to show the packet communication

buffering with dynamic flow control.

The Kotser et al. (US#6,785,232) is cited to show the rate control in transmission of packet data over an ATM network.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Phan whose telephone number is (571) 272-3149. The examiner can normally be reached on Mon - Fri from 6:00 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3988.
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at toll free 1-866-217-9197.

Mphan

06/02/2005.

Muu-phan

MAN U. PHAN
PRIMARY EXAMINER